The Alliance for Coastal Technologies Nutrient Sensor Demonstration Program

The Alliance for Coastal Technologies (ACT) is a NOAA-funded partnership of research institutions, resource managers, and private sector companies dedicated to fostering the development and adoption of effective and reliable sensors and platforms.

ACT is committed to providing the information required to select the most appropriate tools for studying and monitoring coastal environments. Priorities include

- Transitioning emerging technologies to operational use rapidly and effectively;
- Maintaining a dialogue among technology users, developers, and providers;
- Identifying technology needs and novel technologies;
- Documenting technology performance and potential;
- Providing the Integrated Ocean Observing System (IOOS) with information required for the deployment of reliable and cost-effective networks.

How has ACT helped user community?

The Alliance for Coastal Technologies (ACT) has responded to the user community of nutrient sensors by hosting its first relevant workshop "State of Technology in the Development and Application of Nutrient Sensors" at the Skidaway Institute of Oceanography in Savannah, GA in March of 2003. ACT related priorities that resulted from this workshop included:

- Increase outreach efforts to coastal managers regarding benefits of in situ nutrient sensors
- Facilitate sensor development by providing a defensible assessment of the potential market
- Encourage the development and availability of nutrient standards
- Serve as a central point of contact for sensor funding announcements
- Host a second, more focused nutrient sensor workshop

In December of 2006, ACT hosted a second workshop "In Situ Nutrient Sensors II" to address some of these requests. Additional recommendations included:

- Encourage instrument compatibility
- Host a topical user workshop
- Publish and distribute an enlightenment brochure summarizing available data and products
- Formalize Standard Operating Procedures from a technology demonstration and post on the ACT website

Manufacturers Participating in 2007 ACT Nutrient Sensor Demonstration

TriOS Optical Sensors

- ProPS UV Hyperspectral Process Photometer
- Nitrate
- Combines UV measurement with spectral analyses

YSI 9600 Nitrate Monitor

- Nitrate
- Flow injection analysis using standard wet chemistry (cadmium reduction/diazotization)

American EcoTech NUT-1000

- Filterable reactive Phosphate
- Portable real-time phosphate analyzer using standard wet chemistry
- Case sits on land with submersible inlet tube

EnvironTech LLC EcoLAB

- Nitrate and Phosphate
- Standard wet chemistry (cadmium reduction/diazotization and molybdate/ascorbic acid, respectively)

Satlantic ISUS V2

- Nitrate
- Based on absorption characteristics of inorganic compounds in the UV light spectrum

Sub-Chem Pak Nutrient Analyzer

- Nitrate, nitrite, phosphate, iron
- Standard wet chemistry
- Also configured to do profiling or surface mapping and moorings

Previous Technology Verifications

2006 Turbidity Sensor Verification

- 4- to 8-week verification
- Manufacturers:

Aquatec
InSitu
McVan
WetLabs
YSI

2005 Chlorophyll Fluorometry Verification

- 4-week verification
- Manufacturers:

BBE
Chelsea
HydroLab
Turner
WetLabs
YSI

2004 Dissolved Oxygen Sensor Verification

- 4-week verification
- Manufacturers:

Aandera
Greenspan
InSitu
YSI

Verification reports can be downloaded at:
http://www.act-us.info/evaluation_reports.php

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